

DENTAL SCIENCE STANDARDS



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All Nevadans ready for success in the 21st century

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*To improve student achievement and educator effectiveness by ensuring opportunities,
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BUSINESS AND INDUSTRY VALIDATION

All CTE standards developed through the Nevada Department of Education are validated by business and industry through one or more of the following processes: (1) the standards are developed by a team consisting of business and industry representatives; or (2) a separate review panel was coordinated with industry experts to ensure the standards include the proper content; or (3) the adoption of nationally-recognized standards endorsed by business and industry.

The Dental Science standards were validated through active participation of business and industry representatives on the development team.

PROJECT COORDINATOR

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INTRODUCTION

The standards in this document are designed to clearly state what the student should know and be able to do upon completion of an advanced high school Dental Science program. These standards are designed for a three-credit course sequence that prepares the student for a technical assessment directly aligned to the standards.

These exit-level standards are designed for the student to complete all standards through their completion of a program of study. These standards are intended to guide curriculum objectives for a program of study.

The standards are organized as follows:

Content Standards are general statements that identify major areas of knowledge, understanding, and the skills students are expected to learn in key subject and career areas by the end of the program.

Performance Standards follow each content standard. Performance standards identify the more specific components of each content standard and define the expected abilities of students within each content standard.

Performance Indicators are very specific criteria statements for determining whether a student meets the performance standard. Performance indicators may also be used as learning outcomes, which teachers can identify as they plan their program learning objectives.

The crosswalk and alignment section of the document shows where the performance indicators support the Nevada Academic Content Standards in Science (based on the Next Generation Science Standards) and the English Language Arts and Mathematics (based on the Common Core State Standards). Where correlation with an academic content standard exists, students in the Dental Science program perform learning activities that support, either directly or indirectly, achievement of the academic content standards that are listed.

All students are encouraged to participate in the career and technical student organization (CTSO) that relates to their Dental Science program. CTSOs are co-curricular national associations that directly enforce learning in the CTE classroom through curriculum resources, competitive events, and leadership development. CTSOs provide students the ability to apply academic and technical knowledge, develop communication and teamwork skills, and cultivate leadership skills to ensure college and career readiness.

The Employability Skills for Career Readiness identify the “soft skills” needed to be successful in all careers, and must be taught as an integrated component of all CTE course sequences. These standards are available in a separate document.

The **Standards Reference Code** is only used to identify or align performance indicators listed in the standards to daily lesson plans, curriculum documents, or national standards.

Program Name: Dental Science

Standards Reference Code: **DS**

Example: DS.2.3.4

Standards	Content Standard	Performance Standard	Performance Indicator
Dental Science	2	3	4

CONTENT STANDARD 1.0 : INTRODUCTION TO DENTISTRY**PERFORMANCE STANDARD 1.1 : REVIEW THE HISTORY OF DENTISTRY**

- 1.1.1 Construct the timeline of dental history
- 1.1.2 Identify prominent historical figures
- 1.1.3 Describe the progression of dentistry in the United States
- 1.1.4 List members of the dental team

PERFORMANCE STANDARD 1.2 : DEMONSTRATE KNOWLEDGE OF DENTAL CAREERS

- 1.2.1 Classify the roles and requirements of a dentist
- 1.2.2 Classify the roles and requirements of a dental hygienist
- 1.2.3 Classify the roles and requirements of a dental assistant
- 1.2.4 Classify the roles and requirements of a laboratory technician
- 1.2.5 Classify the roles and requirements of office management
- 1.2.6 Classify the roles and requirements of other related medical careers

PERFORMANCE STANDARD 1.3 : ANALYZE LICENSING REQUIREMENTS

- 1.3.1 Recognize and implement the state dental practice act (NAC/NRS 631)
- 1.3.2 Describe professional development requirements
- 1.3.3 Critique state and national dental board examinations
- 1.3.4 Complete the healthcare provider CPR certification

PERFORMANCE STANDARD 1.4 : UNDERSTAND HEALTHCARE SYSTEMS

- 1.4.1 Discuss the various healthcare systems

CONTENT STANDARD 2.0 : UNDERSTAND MEDICAL AND DENTAL TERMINOLOGY**PERFORMANCE STANDARD 2.1 : DEMONSTRATE KNOWLEDGE OF MEDICAL TERMINOLOGY**

- 2.1.1 Interpret roots, prefixes, and suffixes of medical terminology
- 2.1.2 Interpret and correctly utilize medical acronyms within documentation
- 2.1.3 Recognize body planes, directional terms, quadrants, and cavities
- 2.1.4 Utilize mathematical measurement terminology related to healthcare procedures
- 2.1.5 Demonstrate communication skills using the terminology applicable to medical science

PERFORMANCE STANDARD 2.2 : DEMONSTRATE KNOWLEDGE OF DENTAL TERMINOLOGY

- 2.2.1 Interpret roots, prefixes, and suffixes of dental terminology
- 2.2.2 Interpret and correctly utilize dental acronyms within documentation
- 2.2.3 Demonstrate communication skills using the terminology applicable to dental science

CONTENT STANDARD 3.0 : DISCUSS ANATOMY AND PHYSIOLOGY**PERFORMANCE STANDARD 3.1 : DEMONSTRATE KNOWLEDGE OF MICROBIOLOGY**

- 3.1.1 Outline the history of microbiology
- 3.1.2 Classify groups of microorganisms
- 3.1.3 Describe disease management
- 3.1.4 List diseases of major concerns to the medical profession
- 3.1.5 Identify modes of transmission
- 3.1.6 List immunizations

PERFORMANCE STANDARD 3.2 : IDENTIFY BODY SYSTEMS

- 3.2.1 Differentiate between the anatomical structure and location of each system
- 3.2.2 Compare and contrast the functions of each body system

PERFORMANCE STANDARD 3.3 : UNDERSTAND HEAD AND NECK ANATOMY

- 3.3.1 Identify landmarks of the face and oral cavity
- 3.3.2 Identify bones, muscles, and nerves of the head and neck
- 3.3.3 Describe Temporomandibular Joint (TMJ) and its functions
- 3.3.4 Describe the circulation of the head and neck

PERFORMANCE STANDARD 3.4 : DISCUSS TOOTH MORPHOLOGY

- 3.4.1 Compare and contrast between primary and permanent dentition
- 3.4.2 Identify supporting structures of the teeth
- 3.4.3 Examine dental anatomy

CONTENT STANDARD 4.0 : UNDERSTAND INFECTION CONTROL**PERFORMANCE STANDARD 4.1 : UTILIZE HAND HYGIENE**

- 4.1.1 Demonstrate proper hand washing technique
- 4.1.2 Differentiate between sanitizer and soaps
- 4.1.3 Maintain aseptic personal conditions

PERFORMANCE STANDARD 4.2 : INTERPRET OSHA AND CDC GUIDELINES

- 4.2.1 Compare and contrast between disinfection and sterilization
- 4.2.2 Recognize employee safety
- 4.2.3 Utilize Safety Data Sheet (SDS)
- 4.2.4 Summarize the requirements for immunizations
- 4.2.5 Practice water line disinfections and biofilm management

PERFORMANCE STANDARD 4.3 : IDENTIFY PERSONAL PROTECTIVE EQUIPMENT (PPE)

- 4.3.1 Draw conclusions on the importance of disease prevention
- 4.3.2 Demonstrate the proper use of personal protective equipment

PERFORMANCE STANDARD 4.4 : IDENTIFY AND ILLUSTRATE OPERATORY DISINFECTION

- 4.4.1 Differentiate between the different types of waste disposal
- 4.4.2 Demonstrate barrier techniques and disposal
- 4.4.3 Explain prevention of cross contamination
- 4.4.4 Compare types of disinfectants
- 4.4.5 Differentiate between types of clinical surfaces

CONTENT STANDARD 5.0 : UNDERSTAND THE MAINTAINANCE OF DENTAL HEALTH**PERFORMANCE STANDARD 5.1 : DESCRIBE CARIES**

- 5.1.1 Define Greene Vardiman Black's classification of caries
- 5.1.2 Illustrate the caries process
- 5.1.3 Explain the process of caries removal
- 5.1.4 Practice the prevention of decay
- 5.1.5 Explain the process of restorative treatment

PERFORMANCE STANDARD 5.2 : UNDERSTAND PERIODONTAL DISEASE

- 5.2.1 Describe the clinical characteristics of gingivitis and periodontitis
- 5.2.2 Define the classifications of periodontal disease
- 5.2.3 Illustrate the periodontal disease process
- 5.2.4 Summarize the prevention of periodontal disease
- 5.2.5 Determine periodontitis treatment options

PERFORMANCE STANDARD 5.3 : UNDERSTAND PREVENTIVE DENTISTRY

- 5.3.1 Demonstrate patient education
- 5.3.2 Practice oral hygiene instruction
- 5.3.3 Compare and contrast supplemental aids
- 5.3.4 Relate importance of nutrition in oral health
- 5.3.5 Discuss the process of sealants
- 5.3.6 Distinguish and understand the use of fluorides

CONTENT STANDARD 6.0 : EVALUATE PHARMACOLOGY IN DENTISTRY**PERFORMANCE STANDARD 6.1 : UNDERSTAND BASICS OF PHARMACOLOGY IN A DENTAL SETTING**

- 6.1.1 Distinguish between routes of pharmacological administration
- 6.1.2 Explain drug interactions
- 6.1.3 Demonstrate writing of prescriptions
- 6.1.4 Explain types of sedation
- 6.1.5 Distinguish between classes of drugs
- 6.1.6 List commonly prescribed drugs

PERFORMANCE STANDARD 6.2 : UNDERSTAND DENTAL PAIN MANAGEMENT

- 6.2.1 Demonstrate the handling and identification of syringe and needle
- 6.2.2 Identify local anesthetic agents
- 6.2.3 Explain indications and contraindications of vasoconstrictors
- 6.2.4 Categorize different types of anesthetic

CONTENT STANDARD 7.0 : UNDERSTAND RADIOLOGY**PERFORMANCE STANDARD 7.1 : DISCUSS RADIATION SAFETY**

- 7.1.1 Identify the biological effects of ionizing radiation
- 7.1.2 Explain As Low As Reasonably Achievable (ALARA)
- 7.1.3 Explain the role of the National Council on Radiation Protection and Measurements (NCRP)
- 7.1.4 Explain NAC 459.580 and NRS 459.201
- 7.1.5 Demonstrate patient and operator techniques
- 7.1.6 Compare and contrast the risks and benefits of dental radiographs

PERFORMANCE STANDARD 7.2 : IDENTIFY RADIOLOGY EQUIPMENT

- 7.2.1 Identify components of the x-ray machine
- 7.2.2 Identify types of radiographic receptors
- 7.2.3 Identify use of receptor device holders
- 7.2.4 Discuss panoramic indications and technique
- 7.2.5 Discuss the use of film developer

PERFORMANCE STANDARD 7.3 : EXPLAIN RADIOLOGICAL EXPOSURE AND PROCESSING

- 7.3.1 Demonstrate the use of Extension Cone Parallelism (XCP) system
- 7.3.2 Differentiate between bisecting angle and parallel techniques
- 7.3.3 Demonstrate film mounting techniques
- 7.3.4 Identify sizes and types of dental radiographs
- 7.3.5 Identify film processing technique

CONTENT STANDARD 8.0 : DEMONSTRATE PRACTICE MANAGEMENT SKILLS**PERFORMANCE STANDARD 8.1 : COMPOSE A RESUME**

- 8.1.1 Create a cover letter and resume
- 8.1.2 Construct a portfolio

PERFORMANCE STANDARD 8.2 : SUMMARIZE AMERICAN DENTAL ASSOCIATION'S (ADA) INSURANCE CODES

- 8.2.1 Explore the use of American Dental Association's (ADA) codes with dental insurance

PERFORMANCE STANDARD 8.3 : BASIC UNDERSTANDING OF ELECTRONIC MEDICAL RECORDS

- 8.3.1 Describe the regulations of HIPAA
- 8.3.2 Recognize various electronic medical record software systems

CONTENT STANDARD 9.0 : DEMONSTRATE PRE-CLINICAL PROCEDURES**PERFORMANCE STANDARD 9.1 : DIFFERENTIATE CHAIRSIDE PROCEDURES**

- 9.1.1 Demonstrate obtaining and recording vital signs
- 9.1.2 Illustrate charting
- 9.1.3 Describe coronal polishing
- 9.1.4 Demonstrate instruments passing
- 9.1.5 Review radiographs
- 9.1.6 Demonstrate head and neck examination
- 9.1.7 Demonstrate suction techniques
- 9.1.8 Demonstrate patient and operator positioning

PERFORMANCE STANDARD 9.2 : ANALYZE EXPANDED FUNCTIONS

- 9.2.1 Demonstrate cord packing on typodont
- 9.2.2 Determine state regulations on expanded functions

PERFORMANCE STANDARD 9.3 : ASSESS EMERGENCIES AND MEDICAL CONSIDERATIONS

- 9.3.1 Demonstrate patient assessment
- 9.3.2 Demonstrate how to respond to a medical emergency relating to specific medical conditions
- 9.3.3 List responsibilities of each team member during an emergency
- 9.3.4 Recognize accommodations for special needs patients
- 9.3.5 Practice fire safety

CONTENT STANDARD 10.0 : UTILIZE DENTAL INSTRUMENTS AND EQUIPMENT**PERFORMANCE STANDARD 10.1 : DESCRIBE THE USE OF DENTAL INSTRUMENTS**

- 10.1.1 Compare and contrast restorative instruments
- 10.1.2 Compare and contrast surgical instruments
- 10.1.3 Compare and contrast periodontal instruments
- 10.1.4 Compare and contrast endodontic instruments
- 10.1.5 Compare and contrast crown and bridge instruments

PERFORMANCE STANDARD 10.2 : DESCRIBE THE USE OF DENTAL EQUIPMENT

- 10.2.1 Analyze the types of laboratory equipment (model trimmer, dental vibrator, polishing lathe, vacuum former)
- 10.2.2 Describe the function of the air compressor
- 10.2.3 Describe the function of the vacuum unit
- 10.2.4 Analyze the types of operatory equipment (patient dental chair, delivery system, amalgamator, composite curing light, operator and assistant stools, x-ray unit)
- 10.2.5 Demonstrate proper sterilization processes

CONTENT STANDARD 11.0 : CATEGORIZE DENTAL MATERIALS**PERFORMANCE STANDARD 11.1 : CLASSIFY MATERIALS**

- 11.1.1 Compare and contrast restorative materials
- 11.1.2 Compare and contrast impression materials
- 11.1.3 Compare and contrast laboratory materials
- 11.1.4 Compare and contrast provisional materials
- 11.1.5 Compare and contrast endodontic materials
- 11.1.6 Compare and contrast teeth whitening materials

PERFORMANCE STANDARD 11.2 : PRACTICE LABORATORY PROCEDURES

- 11.2.1 Construct study models
- 11.2.2 Demonstrate model trimming
- 11.2.3 Prepare bleach trays

CONTENT STANDARD 12.0 : UNDERSTAND THE VARIOUS DENTAL SPECIALTIES**PERFORMANCE STANDARD 12.1 : UNDERSTAND THE SPECIALIST'S ROLE IN DENTISTRY**

- 12.1.1 Explain the role of a public health dentist
- 12.1.2 Explain the role of an orthodontist
- 12.1.3 Explain the role of an endodontist
- 12.1.4 Explain the role of an oral surgeon
- 12.1.5 Explain the role of a periodontist
- 12.1.6 Explain the role of a pedodontist
- 12.1.7 Explain the role of prosthodontist
- 12.1.8 Explain the role of a general dentist

**CONTENT STANDARD 13.0 : UNDERSTAND THE LEGAL AND ETHICAL RESPONSIBILITIES
WITHIN THE HEALTHCARE SYSTEM**
PERFORMANCE STANDARD 13.1 : PERFORM DUTIES ACCORDING TO REGULATIONS, POLICIES, AND LAWS

- 13.1.1 Describe laws covering the practice of healthcare professionals
- 13.1.2 Compare licensure, credentialing, and legislated scope of practice for dental care practitioners
- 13.1.3 Explain the Patient's Bill of Rights
- 13.1.4 Explain various forms of consent
- 13.1.5 Explain practices that could result in malpractice, liability, and/or negligence
- 13.1.6 Analyze legal responsibilities and limitations of healthcare providers
- 13.1.7 Apply standards for Health Insurance Portability and Accountability Act (HIPAA)
- 13.1.8 Recognize common threats to confidentiality
- 13.1.9 Demonstrate procedures for accurate documentation and recordkeeping

PERFORMANCE STANDARD 13.2 : EVALUATE THE ROLE OF ETHICAL ISSUES IMPACTING HEALTHCARE

- 13.2.1 Identify ethical viewpoints in decision-making
- 13.2.2 Explore ethical issues impacting healthcare
- 13.2.3 Compare personal, professional, and organizational ethics

PERFORMANCE STANDARD 13.3 : DEMONSTRATE PROFESSIONAL AND ETHICAL STANDARDS IMPACTING HEALTHCARE

- 13.3.1 Identify professional behaviors in healthcare
- 13.3.2 Identify medical practices that relate to diverse populations
- 13.3.3 Discuss the importance of respectful and empathetic interactions with diverse populations
- 13.3.4 Describe the influence of diversity on healthcare practices
- 13.3.5 Identify procedures for reporting violations of ethical standards

PLEASE NOTE: THESE STANDARDS HAVE BEEN CROSSWALKED TO THE NEVADA ACADEMIC STANDARDS, ALIGNED TO THE NEVADA MATHEMATICAL PRACTICES, AND CROSSWALKED TO THE COMMON CAREER TECHNICAL CORE STANDARDS.